

REMARKS

Paragraph [0001] has been amended to correct an informality contained therein. Upon entry of this Amendment, claims 1-24 remain pending.

In the Office Action dated August 24, 2006, claims 1-24 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,838,684 (hereinafter “the ‘684 patent”), and claims 1-23 of U.S. Patent No. 7,034,308 (hereinafter “the ‘308 patent”). Applicants respectfully traverse this rejection.

As stated in form paragraph 8.33, only a portion of which is quoted in the Office Action, “A non-statutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claims(s).” *See* MPEP §804, form paragraph 8.33. Thus, it is the claims of the references that need to be compared to the pending application claims and not the disclosure as asserted by the Examiner in the Office Action. *See* Office Action at page 2, paragraph 2.

Independent claim 1 of the present application recites a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source. As recited by claim 1, the contamination barrier includes “an inner ring; an outer ring; and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, wherein at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 1.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a contamination barrier in which “at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring,” as recited by claim 1.

Independent claim 15 recites a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source. As recited by claim 15, the contamination barrier includes “a plurality of lamellas; and a support structure that slidably engages said lamellas, wherein said lamellas and said support structure are configured and arranged to allow said lamellas to expand and contract in response to changes

in temperature.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 15.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a contamination barrier in which a support structure slidably engages the plurality of lamellas such that the lamellas and the support structure are configured and arranged to allow the lamellas to expand and contract in response to changes, as recited by claim 15.

Independent claim 17 recites a contamination barrier that permits radiation to pass therethrough and captures debris from a radiation source generated by the radiation source. As recited by claim 17, the contamination barrier includes “a support structure and a plurality of thin plate members mounted on said support structure, said radiation propagating along an optical axis and said thin plate members being disposed along a plane that includes said axis, said plate members being slidably movable relative to said support structure.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 17.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a contamination barrier in which plate members are slidably movable relative to a support structure, as recited by claim 17.

Independent claim 18 recites a radiation system that includes, *inter alia*, a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source. As recited by claim 18, the contamination barrier comprises “an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 18.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a radiation system that includes a contamination barrier in which at least one outer end of each of the lamellas is slidably connected to at least one of an inner ring and an outer ring, as recited by claim 18.

Independent claim 19 recites a radiation system that includes “a contamination barrier that passes through radiation from a radiation source and captures debris coming from said radiation source, said contamination barrier comprising a plurality of lamellas; and a collector that collects radiation passing said contamination barrier, wherein a surface of said lamellas is

covered with the same material as an optical surface of said collector.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 19.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a radiation system that includes a contamination barrier comprising a plurality of lamellas and a collector that collects radiation passing the contamination barrier, wherein a surface of the lamellas is covered with the same material as an optical surface of the collector, as recited by claim 19.

Independent claim 20 recites a lithographic projection apparatus that includes, *inter alia*, a radiation system to provide a beam of radiation. As recited by claim 20, “the radiation system comprises a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source, said contamination barrier comprising an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 20.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a lithographic projection apparatus that includes a contamination barrier having at least one outer end of each of the lamellas slidably connected to at least one of said inner and outer ring, as recited by claim 20.

Independent claim 21 recites a lithographic projection apparatus that includes, *inter alia*, a radiation system to provide a beam of radiation. As recited by claim 21, the radiation system comprises “a contamination barrier for passing through radiation from a radiation source and for capturing debris coming from said radiation source, said contamination barrier comprising a plurality of lamellas; and a collector for collecting radiation passing said contamination barrier, wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 21.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a lithographic projection apparatus that includes a contamination barrier comprising a plurality of lamellas and a collector that collects radiation passing the contamination barrier, wherein a surface of the lamellas is covered with the same material as an optical surface of the collector, as recited by claim 21.

Independent claim 22 recites a method of manufacturing an integrated structure by a lithographic process that includes, *inter alia*, radiating a beam of radiation through a radiation system. As recited by claim 22, “radiating the beam of radiation through the radiation system comprises passing radiation from a radiation source through a contamination barrier comprising an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, wherein each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 22.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a method of manufacturing an integrated structure by a lithographic process that includes passing radiation from a radiation source through a contamination barrier that includes a plurality of lamellas, wherein at least one outer end of each of the lamellas is slidably connected to at least one of an inner and outer ring, as recited by claim 22.

Independent claim 23 recites a method of manufacturing an integrated structure by a lithographic process. As recited by claim 23, the method includes, *inter alia*, radiating a beam of radiation through a radiation system, wherein said radiating comprises “passing radiation from a radiation source through a contamination barrier comprising a plurality of lamellas, capturing debris from said radiation source, and collecting radiation passing said contamination barrier with a collector, wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 23.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a method of manufacturing an integrated structure by a lithographic process that includes passing radiation from a radiation source through a contamination barrier comprising a plurality of lamellas, capturing debris from the radiation source, and collecting radiation passing the contamination barrier with a collector, wherein a surface of the lamellas is covered with the same material as an optical surface of the collector, as recited by claim 23.

Independent claim 24 recites a method of manufacturing an integrated structure by a lithographic process. As recited by claim 24, the method includes, *inter alia*, capturing debris from the radiation source, “wherein said capturing debris comprises providing a support structure and a plurality of lamellas that are slidably engaged with the support structure so as

to allow the plurality of lamellas to expand and contract in response to changes in temperature.” None of the claims of the ‘684 patent or the ‘308 patent discloses or suggests all of the features of claim 24.

Specifically, none of the claims of the ‘684 patent or the ‘308 patent recites or suggests a method of manufacturing an integrated structure by a lithographic process that includes providing a support structure and a plurality of lamellas that are slidably engaged with the support structure so as to allow the plurality of lamellas to expand and contract in response to changes in temperature, as recited by claim 24.

Accordingly, Applicants respectfully submit that independent claims 1, 15, and 17-24, as well as dependent claims 2-14, and 16, are patentable over the claims of the ‘684 patent and the claims of the ‘308 patent, and respectfully request that the double patenting rejection of claims 1-24 be withdrawn.

In the Office Action, claims 1-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ogushi et al. (U.S. Patent No. 6,867,843) in view of Partlo et al. (U.S. Patent No. 6,452,199). Applicants respectfully traverse this rejection.

Independent claim 1 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 1.

Ogushi et al. discloses a debris removal system (100) that includes a shaft (120), a bore (242), and a plurality of fins (130). *See* Ogushi et al. at col. 6, lns. 48-55; FIG. 2A. The fins (230) are rotated by means of the shaft (120) and a motor (110). *See* Ogushi et al. at col. 6, lns. 55-56; FIG. 2B. There is absolutely no disclosure or suggestion by Ogushi et al. that the debris removal system includes an outer ring, or that the fins are slidably connected to any other part of the debris removal system.

Partlo et al. discloses a conical nested debris collector (5) for collecting debris resulting from the plasma pitch. *See* Partlo et al. at col. 6, lns. 60-66. Partlo et al. does not disclose that the collector (5) includes an inner ring, an outer ring, and “a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, wherein at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring,” as recited by claim 1. Hence, the combination of Ogushi et al. and Partlo et al. does not disclose or suggest each and every feature of claim 1.

Accordingly, Applicants respectfully submit that claim 1 and the claims that depend from claim 1 and add additional advantageous features, are patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claims 1-14 be withdrawn.

Independent claim 15 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 15.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggest a contamination barrier that includes “a support structure that slidably engages said lamellas, wherein said lamellas and said support structure are configured and arranged to allow said lamellas to expand and contract in response to changes in temperature,” as recited by claim 15.

Accordingly, Applicants respectfully submit that claim 15 and claim 16, which depends from claim 15 and adds additional advantageous features, are patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claims 15 and 16 be withdrawn.

Independent claim 17 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 17.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a contamination barrier that includes “a support structure and a plurality of thin plate members mounted on said support structure, said radiation propagating along an optical axis and said thin plate members being disposed along a plane that includes said axis, said plate members being slidably movable relative to said support structure,” as recited by claim 17.

Accordingly, Applicants respectfully submit that claim 17 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 17 be withdrawn.

Independent claim 18 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 18.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a radiation system that includes a contamination barrier that includes “an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring,” as recited by claim 18.

Accordingly, Applicants respectfully submit that claim 18 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 18 be withdrawn.

Independent claim 19 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 19.

The Examiner as relied on Partlo et al. for teaching the claimed “wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.” Partlo et al. teaches that both the debris collector (5) and the radiation collector-director (4) are comprised of nickel plated substrates. *See* Partlo et al. at col. 7, ln. 6. However, Partlo et al. also teaches that the radiation collector-director (4) is “coated with molybdenum or rhodium for very high reflectivity.” *See* Partlo et al. at col. 7, lns. 7-8. Partlo et al. does not disclose or suggest that the debris collector (5) is covered with molybdenum or rhodium. Hence, the combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 19.

Accordingly, Applicants respectfully submit that claim 19 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 19 be withdrawn.

Independent claim 20 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 20.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a lithographic projection apparatus that includes a contamination barrier having at least one outer end of each of the lamellas slidably connected to at least one of said inner and outer ring, as recited by claim 20.

Accordingly, Applicants respectfully submit that claim 20 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 20 be withdrawn.

Independent claim 21 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 21.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a lithographic projection apparatus that includes a contamination barrier comprising a plurality of lamellas and a collector that collects radiation passing the contamination barrier, wherein a surface of the lamellas is covered with the same material as an optical surface of the collector, as recited by claim 21.

Accordingly, Applicants respectfully submit that claim 21 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 21 be withdrawn.

Independent claim 22 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 22.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a method of manufacturing an integrated structure by a lithographic process that includes passing radiation from a radiation source through a contamination barrier that includes a plurality of lamellas, wherein at least one outer end of each of the lamellas is slidably connected to at least one of an inner and outer ring, as recited by claim 22.

Accordingly, Applicants respectfully submit that claim 22 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 22 be withdrawn.

Independent claim 23 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 23.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a method of manufacturing an integrated structure by a lithographic process that includes passing radiation from a radiation source through a contamination barrier comprising a plurality of lamellas, capturing debris from the radiation source, and collecting radiation passing the contamination barrier with a collector, wherein a surface of the lamellas is covered with the same material as an optical surface of the collector, as recited by claim 23.

Accordingly, Applicants respectfully submit that claim 23 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 23 be withdrawn.

Independent claim 24 is discussed above. The combination of Ogushi et al. and Partlo et al. does not disclose or suggest all of the features of claim 24.

Ogushi et al. and Partlo et al. are discussed above. Neither Ogushi et al. nor Partlo et al. discloses or suggests a method of manufacturing an integrated structure by a lithographic process that includes providing a support structure and a plurality of lamellas that are slidably engaged with the support structure so as to allow the plurality of lamellas to expand and contract in response to changes in temperature, as recited by claim 24.

Accordingly, Applicants respectfully submit that claim 24 is patentable over Ogushi et al. in view of Partlo et al., and respectfully request that the rejection to claim 24 be withdrawn.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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